



**COMMENTS OF TELESAT INTERNATIONAL**

**In response to:**

**UK preparations for the World Radiocommunication Conference 2019 (WRC-19)**

**UK provisional views and positions for WRC-19**

**TELESAT INTERNATIONAL**

Leslie Milton  
Senior Counsel, Regulatory Affairs  
1601 Telesat Court  
Ottawa, ON  
Canada K1B 5P4

## COMMENTS OF TELESAT INTERNATIONAL

Telesat International Limited is pleased to submit these comments in response to the Consultation titled *UK preparations for the World Radiocommunication Conference 2019 (WRC-19) – UK provisional views and positions* (the “Consultation Document”). Telesat International is a wholly owned subsidiary of the global satellite operator, Telesat Canada. Telesat Canada’s satellite fleet provides coverage and connectivity solutions to meet the needs of broadcast, corporate, telecom and government customers around the world.

Telesat International, a UK corporation, currently controls a number of Isle of Man ITU filings that provide frequency rights for payloads on three Telesat satellites – Telstar 12 VANTAGE (“T12V”), Telstar 18 VANTAGE (“T18V”) and Telstar 19 VANTAGE (“T19V”). T12V and T19V serve the UK. Telesat Canada also plans to deploy an advanced global low earth orbit (LEO) satellite constellation offering low latency, high throughput broadband services. It is envisaged that once implemented, Telesat’s LEO constellation will provide extensive benefits to UK consumers and businesses, including in particular to those who cannot access super-fast broadband through other existing or planned terrestrial technologies.

The Consultation Document seeks comments from stakeholders on the positions taken by the UK in the forthcoming WRC-19. There are a number of issues on the agenda for WRC-19 that are critical to the future deployment of non-GSO systems, such as Telesat’s LEO, including deployment milestones that accommodate the design and development of technically complex and sophisticated constellations, access to Ka- band and Q/V-band frequencies for both satellite gateways and ubiquitous satellite services, and deployment of earth stations in motion (ESIMs). Telesat’s positions on these issues are addressed in more detail below.

**Question 1: Do you agree with the prioritisation of the agenda items, as shown in Annex 5, and if not why?**

While Telesat is in general agreement with most of the priorities identified by Ofcom in Annex 5 of the Consultation Document, Telesat disagrees with the low priority assigned to Agenda Item

1.6. This Agenda Item considers the development of a regulatory framework for non-GSO FSS systems operating in the Q/V-bands.

Telesat believes that Agenda Item 1.6 should be at least a medium priority for a number of reasons. First, it is unlikely that the large number of non-GSO projects that have already been announced, alone, can be accommodated within the Ku and Ka-band spectrum available for these systems. Therefore, development of the framework for deployment of non-GSO systems in Q/V-band will facilitate the deployment of a greater number of non-GSO systems capable of providing significant, tangible benefits to UK citizens, businesses and government operations.

Second, ITU Working Party 4A is discussing methodologies for GSO/non-GSO coordination in V/Q-band that are different from the provisions that currently apply in the Ku and Ka-bands. Specifically, in the Ku and Ka-bands, GSO networks are protected from interference from non-GSO networks by single-entry equivalent power flux density (EPFD) limits and the provisions of Resolution 85 (WRC-03). The single-entry limits are fixed by apportioning a priori the total allowable interference among 3.5 theoretical non-GSO systems. The studies carried out under AI 1.6 propose similar aggregate EPFD limits, but instead of apportioning the limits amongst a pre-determined number of non-GSO systems, propose to vary that apportionment through, for example, multilateral meetings and in light of the number of deployed systems and their operational parameters. Although this methodology appears to support more efficient use of spectrum and orbital resources, Telesat is still studying the impact of such an approach including, in particular, the proposal to re-visit apportionment at multilateral meetings (and consequent attendance requirements) and the potential impact of changing requirements on deployed systems. Furthermore, it seems highly likely that any new approach for Q/V-band will inevitably lead to requests to modify the rules for Ku and Ka-band. Depending on how any such modifications are structured, they could have a substantial impact on the operational capacity of deployed GSO systems.

**Question 2: Ofcom is supporting the following three priority bands for IMT identification in the RRs:**

**24.25-27.5 GHz**

**40.5-43.5 GHz (as part of a wider global 37-43.5 tuning range)**

**66-71 GHz**

**If you don't agree with any of the bands, or think we should be promoting other bands, please provide justification for your views.**

WRC-19 agenda item 1.13 and the associated Resolution 238 call for studies of various frequency bands for possible identification to IMT. Telesat recognizes that due to the differences in existing allocations among the three ITU regions, the sharing studies may show different band segments as being suitable for identification. However, studying the details of the band segments for purposes of establishing global or regional spectrum allocations is the work of the ITU under this agenda item. Therefore, we are opposed to the statement "as part of a wider global 37 – 43.5 GHz tuning range."

The "tuning range" concept that is being advanced by the IMT community is inconsistent with the actions mandated by the WRC agenda item. Under the proposed "tuning range" approach, the entirety of the bands named in the agenda item would be identified, and efforts would be "delegated" instead to individual countries to determine spectrum allocations to wireless terrestrial services and satellite services within broad frequency ranges identified for IMT. Country-by-country spectrum allocations are inimical to the efficient provision of satellite services. As satellite networks are inherently regional or global, harmonized international spectrum allocations are critical. Otherwise, satellite operators face the extremely challenging task of securing common spectrum allocations and protections on a country-by-country basis.

The 37.5-43.5 GHz band, in particular, is allocated co-primary to fixed-satellite services (FSS), with portions of the band identified for high density fixed satellite services (HDFSS). New GSO and non-GSO satellite networks using these bands are planned and have been licensed. While it may be possible to share spectrum used by individually licensed gateway earth stations with

terrestrial operators, satellite operators must have sole primary access to frequencies used by satellite user terminals. An IMT “tuning range” in 40.5-43.5 GHz or the broader 37.5-43.5 GHz range conflicts with HDFSS allocations<sup>1</sup>, which are ideally suited for deployment of satellite user terminals, and establishes no allocations or protections for exclusive or shared satellite use of other parts of the bands.

Telesat therefore urges Ofcom to oppose a “tuning range” approach in Q/V-band and other bands, and consistent with the ITU mission and longstanding practice, support harmonized satellite spectrum allocations and protections. Such allocations and protections should ensure sole primary satellite use in some bands, including HDFSS bands, to support satellite user terminals, as well as shared spectrum that may be used by individually licensed satellite gateway earth stations.

**Question 8: What are your views on the approach we are proposing to take in respect of ESIMs and are there any additional factors that you think we should take into account?**

Telesat supports rules to facilitate use of ESIMs in 17.7-19.7 and 27.5-29.5 GHz, provided that they are required to protect non-GSO systems. In particular, Telesat believes that in the 28.6-29.1 GHz band, the EIRP spectral density limits currently proposed (based on either Recommendation ITU-R S.524-9 or No. **22.32** of the Radio Regulations) do not protect non-GSO receivers adequately. Therefore, Telesat requests Ofcom to support a solution to this agenda item that advocates coordination between GSO networks employing ESIMs and non-GSO systems in the 28.6-29.1 GHz band under the provisions of No. **9.11A**. This approach is necessary to ensure GSO ESIMs in the band do not affect the deployment of non-GSO systems, and is consistent with the requirement identified by Ofcom that the technical and operational environment for ESIMs must protect services that share the same band.<sup>2</sup>

---

<sup>1</sup> Specifically, the 39.5-40 GHz band is allocated to HDFSS in Region 1, the 40.0-40.5 GHz band is allocated to HDFSS in all regions, and the 40.5-42 GHz band is allocated to HDFSS in Region 2.

<sup>2</sup> See Consultation Document, paragraph 5.9, stating: “The regulatory and technical environment that is applied to ESIM operation needs to ensure protection of the services that share the same bands and needs to be as simple and practicable as possible so that administrations can ensure compliance.”

**Question 9: What are your views on the establishment of regulatory provisions, in Article 22, that cover non-GSO operation between 37.5 and 51.4 GHz?**

As indicated in response to Question 1, Telesat supports the establishment of regulatory provisions for non-GSO systems in the relevant parts of the 37.5-51.4 GHz band (Agenda Item 1.6), to facilitate competitive deployment of a greater number of non-GSO systems and realization of the consequent benefits of these systems for the UK and the rest of the world. Accordingly, Telesat requests Ofcom to take a more active role in the relevant international fora for the development of a solution to this agenda item. Specifically, Telesat is planning to submit, under the working procedures of Ofcom's IFPG WG3, detailed technical studies on some of the recommendations being developed under Agenda Item 1.6. Telesat would appreciate if Ofcom could dedicate resources to the scrutiny and discussion of these studies, so that they can form the basis for the UK position on Agenda Item 1.6 at WRC-19.

**Question 10: What are your views on the various issues under consideration under Agenda Item 7, particularly in respect of the bringing into use of non-geostationary satellite networks (i.e. Issue A)?**

Telesat concurs with Ofcom that a transparent and balanced framework for the bringing into use of non-GSO satellite networks is needed to ensure that systems that are likely to be deployed have access to necessary orbital and spectrum resources.

To satisfy this objective, a revised regulatory framework must address the fact that NGSO systems are being planned and deployed today under the current rules. Telesat, for example, deployed the first satellite in its planned Ka-band non-GSO LEO constellation in February 2018, and has and continues to invest very substantial resources in finalizing a system design that can be deployed in the shortest possible timeframe and makes efficient use of spectrum and orbital resources.

Currently, deployment of a single satellite on one of the notified orbital planes of a filing is sufficient for an administration to secure the spectrum and orbital resources in the filing. Telesat commenced the planning of its LEO constellation based on this regulatory framework. While Telesat supports the establishment of a milestone approach based on actual deployment,

any such approach must include transitional measures, at a minimum, for systems such as Telesat’s LEO, which are partially deployed and rely on ITU filings with a regulatory deadline before the end of WRC-19. Such transitional measures are essential to fair and balanced treatment of operators that have made substantial investments based on the existing regulatory framework.

Telesat applauds Ofcom’s efforts to present to the July 2018 meeting of ITU WP4A, a milestone solution following numerous discussions among UK stakeholders with diverging views on this matter. Among other things, Ofcom’s solution envisions that systems operating under filings for which the 7-year regulatory period falls on or before 1 January 2021 must satisfy a 10% deployment milestone by 1 January 2023. In the consultations that led to this proposal, Telesat presented the transitional milestones identified in Table 1 below for systems that are not fully deployed and for which the regulatory deadline and notified date of bringing into use fall between the end of WRC-15 and the end of WRC-19 (“Transitional Systems”). Under this proposal, an operator of a Transitional System must satisfy a 10% deployment milestone by 1 January 2025. The additional two-year period for compliance with the initial milestone (relative to the Ofcom proposal) accounts for potential delays in the manufacturing of complex spacecraft and/or the availability of launch vehicles for Transitional Systems. Milestones that do not account for such potential delays undermine investments in Transitional Systems, such as Telesat’s LEO, that have been made in reliance on the existing regulatory framework.

**Table 1 – Telesat Proposal for WRC-19 Issue a Transitional Milestones**

Number of Milestones		Milestone timing	Required percentage of satellite launched to meet the milestone
3	1 <sup>st</sup>	1 Jan 2021 + 4 years	10%
	2 <sup>nd</sup>	1 Jan 2021 + 6 years	75%
	3 <sup>rd</sup>	1 Jan 2021 + 8 years	[75% < x ≤ 100%]

Notwithstanding Telesat’s proposal and in the spirit of compromise, Telesat supported Ofcom’s position at the July 2018 ITU WP4A meeting. However, Telesat has noticed that other

administrations have recently presented milestone proposals in some international fora (e.g. CEPT PT-B) which are more aligned with the transitional milestones advocated by Telesat to accommodate technologically advanced Transitional Systems. Therefore, Telesat invites Ofcom to reconsider its view on this issue and support a 1 January 2025 date for deployment of a small portion (8-10%) of a Transitional System.

**Question 32: What changes to the Radio Regulations have you identified that would benefit from action at a WRC and why? Do you have any proposals regarding UK positions for future WRC agenda items or suggestions for other agenda items, needing changes to the Radio Regulations, that you would wish to see addressed at a future WRC?**

As in the case of GSO satellite systems, ESIMs are expected to be an important use case for proposed non-GSO satellite systems, for delivery of satellite broadband to terminals on ships, planes and moving vehicles. An international regulatory framework for these activities will facilitate the deployment of these services, and provide greater choice and connectivity for UK consumers and businesses. Consistent with this, Telesat seeks a WRC-23 Agenda Item that addresses the deployment of ESIMs communicating with non-GSO systems in the 17.7-20.2 and 27.5-30.0 GHz bands, as well as in all bands for which WRC-19 AI 1.6 develops regulatory measures for the deployment of non-GSO systems.

All of which is respectfully submitted by Telesat International.

/s/ \_\_\_\_\_  
Leslie Milton  
Senior Counsel, Regulatory Affairs  
1601 Telesat Court  
Ottawa, ON  
Canada, K1B 5P4

September 13, 2018